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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,106	11/17/2003	Harue Nakashima	0553-0382	3243

7590 10/13/2006

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EXAMINER
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GARRETT, DAWN L

ART UNIT	PAPER NUMBER
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1774

DATE MAILED: 10/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/715,106

**Applicant(s)**

NAKASHIMA ET AL.

**Examiner**

Dawn Garrett

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 July 2006.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 4-6 and 10-39 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☒ Claim(s) 6 is/are allowed.  
6) ☒ Claim(s) 4,5 and 10-39 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 30 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

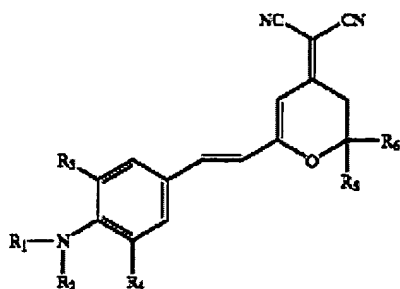
### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Amendment*

1. This Office action is responsive to the response dated July 5, 2006. Claims 1-3 and 7-9 are cancelled. Claim 6 has been amended. Claims 4-6 and 10-39 are pending and under consideration.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. The objection to claim 6 set forth in the last Office action (mailed April 5, 2006), paragraph 5, is withdrawn due to the amendment.
4. Claims 4, 5, and 36-39 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Shi et al. (US 6,680,132). Shi et al. discloses red organic electroluminescent devices comprising at least one organic luminescent medium including a formula:

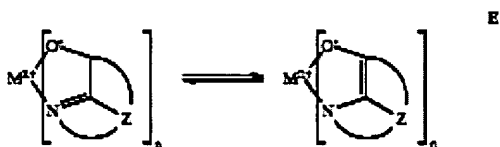


wherein:

R<sub>1</sub> and R<sub>2</sub> are individually alkyl of from 1 to 20 carbon atoms, aryl, substituted aryl, carbocyclic and other heterocyclic systems; and R<sub>1</sub> and R<sub>2</sub> can be connected to form 5 or 6 member ring systems; and R<sub>3</sub> and R<sub>4</sub> are individually hydrogen; alkyl of from 1 to 10 carbon atoms, and a branched or unbranched 5 or 6 member substituent ring connecting with R<sub>1</sub>, R<sub>2</sub> respectively; and R<sub>5</sub> and R<sub>6</sub> are individually hydrogen; alkyl of from 1 to 20 carbon atoms; aryl and heteroaryl of from 5 to 24 carbon atoms; and R<sub>6</sub> can be connected with R<sub>5</sub> to form a branched or unbranched 5 or 6 member carbocyclic ring.

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(see abstract). These compounds are used as dopants (see entire document) and read upon a red-emitting dopant. As a useful host of the luminescent layer Shi et al. teaches metal complexes such as chelated oxinoid compounds (see col. 8, lines 46-67) including the following formula (see col. 8, lines 5-27):



wherein

M represents a metal;

n is an integer of from 1 to 4; and

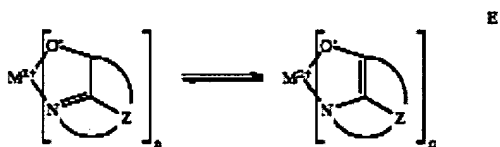
Z independently in each occurrence represents the atoms completing a nucleus having at least two fused aromatic rings.

Since M represents a metal, this teaching encompasses Ti, Zr, Hf and Rf of Group IV and more specifically, Shi et al. clearly mentions “Zirconium oxine” at col. 8, lines 66-67. The ligand required by the instant claims is clearly taught by Shi et al. (see all of col. 8). Although Shi et al. fails to *exemplify* a device using a combination of Group IV complex host material with the red luminescent dopants of the formula shown in the abstract, it would have been obvious to one of ordinary skill in the art at the time of the invention to have formed a device comprising a luminescent layer of the Ti, Zr, Hf and Rf complexes in combination with the red emitting dopants, because Shi et al. clearly teaches the complexes as suitable hosts and the red emitting compounds as suitable red dopants for a luminescent layer of an electroluminescent device.

5. Claims 11-35 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Shi et al. (US 6,680,132) in view of Kim et al. (US 6,614,176). Shi et al. discloses red organic electroluminescent devices comprising at least one organic luminescent medium including red-

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emitting DCM-type derivatives (see abstract). These compounds are used as dopants (see entire document) and read upon a red-emitting dopant. Shi et al. fails to teach the specific red-emitting DCM derivatives of claims 11, 12, 19, 20, 27, and 28. Kim et al. teaches in analogous art useful dopants for a light emitting layer comprising DCJTb, DCM1 (Kim et al. sets forth this compound as “DCM”), and DCM2 (see col. 3 and 4). It would have been obvious to one of ordinary skill in the art to have selected the DCM derivatives taught by Kim et al. for the Shi et al. device, because Kim et al. teaches the DCM derivatives as suitable dopants for a light emitting device. One would have expected the DCM derivatives to be similarly useful in the Shi et al. device, especially since Shi et al. disclose DCM-type derivatives as suitable for their devices. As a useful host of the luminescent layer Shi et al. teaches metal complexes such as chelated oxinoid compounds (see col. 8, lines 46-67) including the following formula (see col. 8, lines 5-27):



wherein

**M** represents a metal;

**n** is an integer of from 1 to 4; and

**Z** independently in each occurrence represents the atoms completing a nucleus having at least two fused aromatic rings.

Since M represents a metal, this teaching encompasses Ti, Zr, Hf and Rf of Group IV and more specifically, Shi et al. clearly mentions “Zirconium oxine” at col. 8, lines 66-67. The ligand required by the instant claims is clearly taught by Shi et al. (see all of col. 8). Although Shi et al. fails to *exemplify* a device using a combination of Group IV complex host material with the red

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luminescent dopants, it would have been obvious to one of ordinary skill in the art at the time of the invention to have formed a device comprising a luminescent layer of the Ti, Zr, Hf and Rf complexes in combination with the red emitting dopants, because Shi et al. clearly teaches the complexes as suitable hosts and the red emitting compounds as suitable red dopants for a luminescent layer of an electroluminescent device.

***Allowable Subject Matter***

6. Claim 6 is allowed. The closest prior art is considered to be Shi et al. discussed in this Office action. The prior art either alone or in combination with other art fails to teach or to render obvious the metal complex of claim 6 in both a green layer and a red layer of an electroluminescent device that further contains a blue light emitting layer.

***Response to Arguments***

7. Applicant's arguments filed July 5, 2006 have been fully considered but they are not persuasive.

Applicant argues the combination of features in the present claims was not conceived of previously. Applicant argues "Shi does not appear to recognize the problem that the present invention overcomes or the claimed solution to this problem." Similarly, applicant argues with regard to the rejection over Shi in view of Kim et al., "it would not have been obvious to one of ordinary skill in the art to derive the claimed invention from Shi and Kim". In response, the examiner submits per M.P.E.P. § 2145, the arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); *In re Geiseler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997). Applicant alleges novel and

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unexpected characteristics and features, but has not discussed data to support the arguments. The reasons for combining Shi and Kim are set forth in the above rejection.

***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571) 272-1523. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached at (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Dawn Garrett  
Primary Examiner  
Art Unit 1774

October 10, 2006